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normal religious states, but I venture to believe that a study of the facts by ordinary empirical methods will show that every specific individual experience of God by *Einfühlung* essentially involves factors of suggestion and inference. On the other hand, if we turn from specific religious experiences to the nature of feeling as a whole, the objective content, while it acquires breadth, loses definiteness. What is definitely determinable is a mass of organic conditions. The rest is the dark in which all cats are gray. How the philosophy of religion can get out of this apparent *impasse* this is hardly the place to say, but some help might conceivably be found in an endeavor to coördinate the rational analysis of the idealists with the functional analysis of the psychologists.

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A Treatise on Cosmology. Vol. I., Introduction. By HERBERT NICHOLS. Cambridge, Mass., 1904.—pp. 455.

A hasty review of physics in its development culminates in an image borrowed from Helmholtz, Maxwell, Thompson of a "universal fluid interspersed with whorling rings." Here the critic is moved to ask whether the traditional adjectives 'perfect,' 'homogeneous,' 'frictionless,' 'incompressible,' can retain their meaning in such a *uniform* world, whether the qualifications of our fluid be not "best expressed by their omission," and finally whether with all its adjectives the meaning of the substantive does not vanish also (§ 22). "The universal plenum then does not require to be described as a 'fluid.' Absolutely its sole traits are its geometric properties and the lawfulness observed in its geometric changes" (§ 23). This outcome "is such as to compel every well balanced mind now to consider whether this same space and motion may not now be reduced to some conception more reconcilable with what has been learned of the problem on its mental side" (§ 33). This is an invitation to a review of philosophy in its development.

In this review emphasis is laid on the contribution of the monadologists, and then, of the more psychological philosophers. A characteristic step is from Leibniz to Lotze: "It was Leibnitz's shortcoming that he could neither wholly free his mind of the old spatial characteristics that are commonly assigned to the outer world, nor conjure up others, in accord with the [Berkeleyan] discovery that our spatial pictures are in us . . ." (§ 70). The intervening contributions (above all, of Herbart) to the psychology of space made it easy for Lotze to accept the dictum that "spatial extension is wholly an affair of the individual mind." Space relationship is an "intellectual order," in which the elements "arrange themselves according to their meaning (as constituents of the world's content which stand in need of one another)," an intellectual order "which is *valid for* them, but does not *exist between* them (*Microcosmus*)" (§ 138). The perfecting of this device for "reconciling physics and philosophy," the device, namely, of treating an extended world order as a symbolic representation of relationships between elements which *in themselves* stand in no such relations, is the chief contribution of Wundt.

An *outside* world which is a congeries of souls, an *inside* world which is a system of sensations, *outside* and *inside* defined solely by a difference in our way of ordering *the same elements*,— this would seem to be the image in which the dialectic of history results. If now we ask what characteristics belong to these last facts of our world, the author enumerates six: "Quality, Quantity, Changeableness, Lawfulness, Presentativeness, and Personality — which together I shall call the ultimate and irreducible cosmic traits or elements" (§ 186). It is the "nature of our thinking powers" which imposes just these traits on our conception, and then "all the facts of the universe display these six traits, and no other traits are displayed by them all" (§ 287).

Of the six, the last two are epigrammatically opposed in the formula: "Presentativeness is a unique sort of togetherness or conjunction. Personality . . . is presentative disjunction." "Any presentation is a personality. . . . We speak of the presentation when our interest is centered within the personality; that is, upon the sort of qualities gathered there. . . . And we speak rather of the personality when we have in mind any such concrete group in presentatively disjoined relation from other similar groups" (§ 272). The *same* facts, we have seen, are susceptible of arrangement in two orders, the *physical* and the *psychical;* it is in terms of continuities and discontinuities of physical structure (*e. g.*, nervous systems) that "personal peripheries" are defined (§ 275 *et passim*).

The portion of his subject on which the author has spent his best ingenuity is that which attempts out of these beginnings to construct a world-order comparable to that contemplated by traditional physics. First, we may regard all changes in the world as intensity changes affecting an array of ultimate qualities. Then we may assign each quality to a point defined by a system of Cartesian coördinates. Now the order of changes which continually sweep over this qualitative array "like a fire over the prairie," leads us to make this assignment in a certain order, to establish lines, to recognize distances, and to discover the relationships of Euclidian geometry.

The rest of physics is deducible from three laws applying to our array of "points": (1) Every quality, when it changes to any other quality, may be regarded as changing continuously through a Scale of Change, toward or from the standard norm of that scale; and all qualities may be regarded as forever tending thus to change toward that norm (§ 332). (2) (In effect) with change at any point is associated a change in the same sense at every other point inversely proportional to the square of the distance (§ 333). (3) All qualities are forever changing, and their variable distribution in the scale of change and through the universe is always such that . . . the sum of their Scale Heights is constant (§ 401).

From these assumptions we are to see emerge the remaining dimensions (time, mass), the summary definitions (velocity, momentum, force, energy, etc.), and the laws (conservation of mass, of energy, Newton's axioms and his law of gravitation) of traditional mechanics.

The reviewer's following of this development is at points quite breathless. For example, the arrangement of bare qualities in a space scheme is accomplished with a gayety of heart that makes one wonder whether the difficulties that leave one so depressed after the reading of a Riemann or a Helmholtz, have really been felt by the author. Where not breathless one is still bewildered,— in such a dance of physical "dimensions" how is one to follow the figures? First we learn that the "scale-height" (see law 1) of any quality is so much *energy* (§ 355), then that a unit length of the scale is equivalent to a unit *force* (§ 379), finally that the scale distance at which the quality of any point is maintained is *mass* (§ 388). The author is here speaking in terms of a "recensed" physics, to be sure, but that he has a nicer feeling for the principles of definition in the new than appreciation of them in the old may well be doubted, when we read that "a unit of force is defined in current physics as that force which continually [*sic*] generates a unit of acceleration in a unit of mass; *or*, as that amount of force that moves a unit of mass through a unit of space in a unit of time" (§ 379).

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